

REMARKS

In the July 14, 2008 Office Action, all of the claims stand rejected in view of prior art. No other objections or rejections were made in the Office Action.

Status of Claims and Amendments

In response to the July 14, 2008 Office Action, Applicant has amended claims 1 and 2 as indicated above. Thus, claims 1-16 are pending, with claims 1 and 2 being the only independent claims. Reexamination and reconsideration of the pending claims are respectfully requested in view of above amendments and the following comments.

Rejections - 35 U.S.C. § 103

In paragraphs 2-9 of the Office Action, claims 1-16 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 2,561,280 (Kampf) in view of U.S. Patent No. 5,165,878 (Inagaki et al.). In response, Applicant has amended independent claims 1 and 2 as mentioned above in order to more clearly define the present invention over the prior art of record.

More specifically, independent claim 1 now clearly recites that the piston having a radial width measured between the inner and outer piston surfaces that is varied about a circumference of the piston such that a gap between the inner periphery of the cylinder chamber and the inner piston surface of the piston and a gap between the outer periphery of the cylinder chamber and the outer piston surface of the piston are kept substantially smallest ~~to a predetermined value during the rotations~~ a full rotation, with a difference in fluid pressure between the outer working chamber and the inner working chamber taking place in the full rotation. Independent claim 2 recites the cylinder chamber has a radial width measured between the inner and outer peripheries of the cylinder chamber that is varied about a circumference of the cylinder chamber such that a gap between the inner periphery of the cylinder chamber and the inner piston surface of the piston and a gap between the outer periphery of the cylinder chamber and the outer piston surface of the piston are kept substantially smallest ~~to a predetermined value during the rotations~~ a full rotation, with a difference in fluid pressure between the outer working chamber and the inner working chamber taking place in the full rotation. Clearly these arrangements are *not* disclosed or

suggested by the Kampf patent and/or the Inagaki et al. patent, whether taken singularly or in combination.

The fluid machine of the present invention divides the cylinder chamber (50) into the outer compressor chamber (51) and inner compressor chamber (52) by the annular piston (22). This fluid machine changes gas load in the outer compressor chamber (51) and the inner compressor chamber (52) during a relative rotation of the cylinder (21) and the piston (22). As a result of the changes in gas load of such a piston cylinder compressor, there is a propensity for gas leaks between the cylinder and the piston to occur during the rotation.

The present invention intends to stop/minimize this leakage by preventing a gap between the cylinder (21) and the piston (22) from changing during the rotation, by changing at least one of width T1 of the cylinder (50) and width T2 of the piston (22) on the one circumference.

The primary reference (the Kampf patent) has a cylinder, a piston, an outer compressor chamber, and an inner compressor chamber, but width of a cylinder chamber and width of the piston are constant, as acknowledged by the Office Action.

In contrast, the secondary reference (the Inagaki et al. patent) is directed to a scroll compressor. Volume of two chambers between scrolls are same, and there is no difference in pressure in the two chambers. Therefore, there is no reason to combine the Kampf patent and the Inagaki et al. patent as suggested in the Office Action. Rather, the combination of the references does not assure preventing the gas leak such as is possible with the arrangements set forth in independent claims 1 and 2. Accordingly, withdrawal of this rejection of independent claims 1 and 2 are respectfully requested.

Under U.S. patent law, the mere fact that the prior art can be modified does **not** make the modification obvious, unless an **apparent reason** exists based on evidence in the record or scientific reasoning for one of ordinary skill in the art to make the modification. See, KSR Int'l Co. v. Teleflex Inc., 127 S.Ct. 1727, 1741 (2007). The KSR Court noted that obviousness cannot be proven merely by showing that the elements of a claimed device were known in the prior art; it must be shown that those of ordinary skill in the art would have had some "apparent reason to combine the known elements in the fashion claimed." Id. at 1741. The current record lacks any apparent reason, suggestion or expectation of success for combining the patents to create Applicants' unique arrangement of rotary fluid machines of independent claims 1 and 2.

Moreover, Applicant believes that dependent claims 3-16 are also allowable over the prior art of record in that they depend from independent claim 1 or 2, and therefore are allowable for the reasons stated above. Also, dependent claim 3-16 are further allowable because they include additional limitations, which in combination with the features of independent claims 1 and 2, are not disclosed or suggested in the prior art. Accordingly, withdrawal of this rejection of dependent claims 3-16 are also respectfully requested.

Response to Arguments

Applicant disagrees with this section of the Office Action. First, a spiral chamber is not an annular chamber. Annular means shaped like a ring. A spiral is not shaped like a ring. Second, changes in teeth (involute shape) of the secondary reference (the Inagaki et al. patent) are based on a slide-crank orbital motion. In contrast, the present invention intends to prevent the gas leak by changing the gas load in the outer compressor chamber (51) and the inner compressor chamber (52). For this purpose, the present invention changes at least one of the width T1 of the cylinder chamber (50) and the width T2 of the piston (22) on one circumference. Thus, the changes in teeth (involute shape) of the secondary reference (the Inagaki et al. patent) are totally different from the changes in the width of the present invention.

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In view of the foregoing amendment and comments, Applicant respectfully asserts that claims 1-16 are now in condition for allowance. Reexamination and reconsideration of the pending claims are respectfully requested.

Respectfully submitted,

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